

## Claims

1. A synergistic fermented composition useful in promoting plant growth, soil health and bio-controlling, said composition comprising bovine urine; crushed neem leaves of concentration ranging between 10 to 750 grams/liter of bovine urine and/or crushed garlic bulbs of concentration ranging between 1 to 500 grams/liter of bovine urine, optionally along with carrier(s).
2. A synergistic composition as claimed in claim 1, wherein the concentration of neem is preferably 250 grams/liter of bovine urine.
3. A synergistic composition as claimed in claim 1, wherein the concentration of garlic is preferably 100 grams/liter of bovine urine.
4. A synergistic composition as claimed in claim 1, wherein the bovine urine is fresh bovine urine.
5. A synergistic composition as claimed in claim 1, wherein the bovine urine is cow urine.
6. A synergistic composition as claimed in claim 1, wherein the carrier is selected from a group comprising vermicompost, soil, peat, rice husk, vermiculite, carboxymethyl cellulose, perlite, polyvinyl-pyrrolidone, talc, and fermented pres mud.
7. A synergistic composition as claimed in claim 1, wherein the carrier is preferably vermicompost or fermented pres mud.
8. A synergistic composition as claimed in claim 1, wherein the concentration of carrier is ranging between 10 to 1000 gm/ liter of bovine urine.
9. A process of preparing synergistic fermented composition comprising cow urine, crushed neem leaves of concentration ranging between 10 to 750 grams/liter of bovine urine, and/or crushed garlic bulbs of concentration ranging between 1 to 500 grams/liter of bovine urine, optionally along with carrier(s), useful in promoting plant growth, said process comprising steps of:
  - a. collecting fresh urine from healthy bovine,
  - b. adding crushed garlic bulbs and neem leaves to the collected urine,
  - c. fermenting resultant mixture of step (b) to obtain the synergistic composition, and
  - d. optionally, adding carrier to the synergistic composition.

10. A process as claimed in claim 9, wherein the concentration of neem is preferably 250 grams/liter of bovine urine.
11. A process as claimed in claim 9, wherein the concentration of garlic is preferably 100 grams/liter of bovine urine.
- 5 12. A process as claimed in claim 9, wherein the bovine is cow.
13. A process as claimed in claim 9, wherein fermenting the resultant mixture for about 30 days.
14. A process as claimed in claim 9, wherein the carrier is selected from a group comprising vermicompost, soil, peat, rice husk, vermiculite, carboxymethyl  
10 cellulose, perlite, polyvinyl-pyrrolidone, talc, and fermented pres mud.
15. A process as claimed in claim 9, wherein the carrier is preferably vermicompost or fermented pres mud.
16. A process as claimed in claim 9, wherein the concentration of carrier is ranging between 10 to 1000-gm/ liter of bovine urine.
- 15 17. A method of promoting plant growth using bovine urine and/or crushed neem leaves of concentration ranging between 10 to 750 grams/liter, and/or crushed garlic bulbs of concentration ranging between 1 to 500 grams/liter, optionally along with carrier(s), said method consisting step of exposing plant part(s) to bovine urine and/or neem and/or garlic.
- 20 18. A method as claimed in claim 17, wherein the concentration of neem is preferably 250 grams/liter.
19. A method as claimed in claim 17, wherein the concentration of garlic is preferably 100 grams/liter.
20. A method as claimed in claim 17, wherein the bovine is cow.
- 25 21. A method as claimed in claim 17, wherein the garlic and/or neem is crushed in urine or water.
22. A method as claimed in claim 17, wherein the carrier is selected from a group comprising vermicompost, soil, peat, rice husk, vermiculite, carboxymethyl cellulose, perlite, polyvinyl-pyrrolidone, talc, and fermented pres mud.
- 30 23. A method as claimed in claim 17, wherein the carrier is preferably vermicompost or fermented pres mud.
24. A method as claimed in claim 17, wherein the concentration of carrier is ranging between 10 to 1000 gm/ liter of bovine urine.

25. A method as claimed in claim 17, wherein the method controls plant pathogenic bacteria.
26. A method as claimed in claim 17, wherein the method promotes accumulation of nutrients in plant biomass.
- 5 27. A method as claimed in claim 17, wherein the method promotes accumulation of nitrogen in plant biomass.
28. A method as claimed in claim 17, wherein the method promotes accumulation of phosphorus in plant biomass.
29. A method as claimed in claim 17, wherein the method promotes phosphate  
10 solubilization.
30. A method as claimed in claim 17, wherein the method promotes abiotic stress tolerance.
31. A method as claimed in claim 17, wherein the method promotes antagonists towards plant pathogenic fungi.
- 15 32. A method as claimed in claim 17, wherein the method promotes antagonists towards plant pathogenic fungi in rhizosphere of plants.
33. A method as claimed in claim 31, wherein the fungi are selected from a group comprising *Fusarium* sp., *Alternaria* sp., *Phytophthora palmivora*, *Sclerotinia sclerotiorum*, *Sclerotium rolfii*, *Colletotrichum* sp., *Penicillium* sp., *Aspergillus*  
20 *niger*, *Rhizoctonia solani*, *Pythium aphanidermatum*, *Curvularia lunata*, and *Phoma sorghi*.
34. A method as claimed in claim 17, wherein the method enhances total phenolic content of the plant.
35. A method as claimed in claim 17, wherein the method protects plants from soil  
25 borne plant pathogens forming sclerotia / chlamydospores.
36. A method as claimed in claim 17, wherein promoting plants growth by soil drenching.
37. A method as claimed in claim 17, wherein promoting plants growth by aerial/foiar spray.
- 30 38. A method as claimed in claim 17, wherein promoting plants growth by seed soaking.
39. A method as claimed in claim 17, wherein promoting plants growth by furrow treatment.

40. A method as claimed in claim 17, wherein the method stimulates proliferation of plant growth promoting microorganisms in the rhizosphere of plants.
41. A method as claimed in claim 17, wherein the method stimulates proliferation of phosphorus solubilizing microorganisms in the rhizosphere of plants.
- 5 42. A method as claimed in claim 17, wherein the method stimulates proliferation of abiotic stress tolerant microorganisms in rhizosphere of plants.
43. A method as claimed in claim 17, wherein the neem and/or garlic and/or urine are in boiled state.
44. A method as claimed in claim 17, wherein the plants are selected from a group  
10 comprising chickpea, maize, wheat, and pea.
45. A method as claimed in claim 17, wherein the neem and/or garlic and/or urine in earthen and copper vessel promote plant growth.
46. A method as claimed in claim 45, wherein the method using copper and/or earthen vessel promotes plant growth increases plant dry weight by about 110%.
- 15 47. A method as claimed in claim 17, wherein the neem and/or garlic and/or urine is diluted in the ratio ranging between 1:5 to 1: 1000.
48. A method as claimed in claim 47, wherein the neem and/or garlic and/or urine is diluted preferably in the ratio of about 1:10.
49. A method as claimed in claim 17, wherein the combination of neem, garlic, and  
20 urine is most effective in promoting plant growth.
50. A method as claimed in claim 17, wherein the synergistic combination of neem, garlic, and urine show about 85% increase in wheat growth.
51. A method as claimed in claim 17, wherein the method promotes plant growth by inhibiting sclerotia and chlamydo spores of pathogenic fungi in about 2 to 4  
25 hours.
52. A method as claimed in claim 17, wherein the method promotes plant growth by protecting plant from soil-borne plant-pathogens.
53. A method as claimed in claim 17, wherein the method promotes plant growth as combination of neem, garlic, and urine is showing 100% biocontrol activity  
30 against collar rot.
54. A method as claimed in claim 17, wherein the method promotes plant growth by controlling leaf spot disease.

55. A method as claimed in claim 17, wherein the method promotes plant growth by increasing dry weight of the plant by about 50%.
56. A method as claimed in claim 17, wherein the method promotes plant growth by increasing nitrogen accumulation by about 50%.
- 5 57. A method as claimed in claim 17, wherein the method promotes plant growth by increasing phosphorus accumulation by about 35%.
58. A method as claimed in claim 17, wherein the method promotes plant growth by reducing pathogenic bacterial population by about 1 log unit.
59. A method as claimed in claim 17, wherein the method promotes plant growth by  
10 reducing pathogenic fungal population by about 0.7 log unit.
60. A method as claimed in claim 17, wherein the method promotes plant growth by reducing actinomycetes population by about 1 log unit.
61. A method as claimed in claim 17, wherein the method promotes plant growth by increasing antagonism by about 150% towards fungi.
- 15 62. A method as claimed in claim 17, wherein the method promotes plant growth by increasing abiotic stress tolerance by about 100%.
63. A method as claimed in claim 17, wherein the method promotes plant growth by increasing phosphate solubilization by about 120%.
64. A method as claimed in claim 17, wherein the method shows increase in gram-  
20 positive bacteria by about 40%.
65. A method as claimed in claim 17, wherein the method shows decrease in gram-negative bacteria by about 20%.
66. A method as claimed in claim 17, wherein the method shows increase in gram-positive bacteria.
- 25 67. A method as claimed in claim 17, wherein the carrier increases plant growth by 30 to 50%.
68. A method as claimed in claim 17, wherein the carrier increases antagonism towards plant-pathogenic fungi in the range of 30 to 45%.
69. A method as claimed in claim 17, wherein the method promotes plant growth by  
30 increasing phenolic content in the range of 120 to 130%.